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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,578	01/22/2001	Hideki Okada	SON- 1996	6632

23353 7590 10/04/2002

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EXAMINER

HARPER, HOLLY R

ART UNIT PAPER NUMBER

2879

DATE MAILED: 10/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/765,578

Applicant(s)

OKADA ET AL.

Examiner

Holly R. Harper

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. An example is "Projection type cathode ray tube with liquid cooling system."

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the sealing member" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meglio et al. (USPN 5,877,583) hereinafter "Meglio" in view of Hodges (USPN 4,755,868).

In regard to claim 1, the Meglio reference discloses a cathode ray tube with a liquid cooling system (Column 1, Lines 4-5). The cooling system has an opening so that

the cooling liquid makes contact with the panel through the opening (Figure 1). Meglio does not disclose the structural limitations of the cathode ray tube. Hodges discloses a CRT panel with a concave phosphor surface (Column 3, Lines 49-52) with uniform thickness (Column 4, Line 51). A concave phosphor surface will positively affect the shape of the energy distribution function of the area excited by an electron beam (Column 3, Lines 36-38) and the overall distribution of energy produced by the CRT (Column 3, Lines 63-64). A uniform thickness of the panel is desired to keep the energy distribution generated by the phosphor steady (Column 4, Lines 62-64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to create a CRT panel with a concave phosphor surface and uniform thickness, as taught by Hodges, to create a uniform dispersion of light from the faceplate.

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meglio and Hodges as applied to claim 1 above and in view of Cawthorne et al. (USPN 5,485,890) hereinafter "Cawthorne."

In regard to claim 2, the Meglio reference discloses a cooling system for a CRT, but doesn't specify how it is attached to the front surface of the CRT panel. The Cawthorne reference teaches that a sealing surface should be polished before a sealing member is attached (Column 5, Lines 39-41). By polishing the surface that comes in contact with the sealing member, irregularities and scratches are removed from the surface, which reduces the impurity of the sealing bond. It would have been obvious to one of ordinary skill in the art at the time the invention was made to polish the surface of

the panel beneath the sealing member, as taught by Cawthorne, to reduce the impurity of the sealing bond.

In regard to claim 3, claim 3 discloses that polishing is performed using an abrasive containing cerium oxide. The Examiner notes that the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

In regard to claim 4, the Meglio reference discloses a cooling system mounted on the front panel of a CRT. The peripheral portion of the outer surface of the panel is a planar surface (Figure 1).

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meglio and Hodges as applied to claim 1 above and in view of Hasegawa (USPN 4,780,640)

In regard to claims 5 and 6, the Meglio reference discloses a cooling system for a CRT, but doesn't specify how it is attached to the front surface of the CRT panel. The Hasegawa reference teaches that a silicon group adhesive agent is used (Column 1, Line 21). An adhesive has strong bonding properties and would provide a strong seal. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the sealing member between the panel and the cooling system from a silicon group adhesive, as taught by Hasegawa, to improve the quality of the seal.

8. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meglio and Hodges as applied to claim 1 above and in view of Lee (USPN 6,188,165).

The Meglio reference discloses that the cooling system has a second opening blocked by a lens (Column 1, Line 21 and Figure 1, Element 18), but doesn't teach that

an o-ring is used to mount the lens to the cooling system. The Lee reference teaches that a rubber ring (o-ring) is used to form a seal between the lens and the coupler (Column 1, Lines 26-29 and Figure 1, Element 24). An o-ring provides a resilient, airtight, and waterproof seal. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the sealing member between the lens and the cooling system from an o-ring, as taught by Lee, to improve the quality of the seal.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meglio and Hodges as applied to claim 1 above and in view of Inaida et al. (USPN 4,740,727) hereinafter "Inaida."

In regard to claim 9, the Meglio reference discloses that the liquid coolant may be clear (Column 1, Line 17), but it doesn't describe the refractive index of the liquid or the panel. The Inaida reference teaches that the refractive indices of the front panel, lens, and cooling medium are approximately equal to each other. This makes it possible to obtain optical images of a high luminance and a high contrast ratio (Column 6, Lines 18-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to choose materials for the cooling system and CRT so that the refractive indices are substantially equal, as taught by Inaida, to improve the luminance and contrast ratio.

10. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Meglio and Hodges and Inaida as applied to claims 1 and 9 above in view of Kataoka et al. (USPN 4,924,244) hereinafter "Kataoka."

The Meglio and Inaida references disclose the use of liquid coolant, but it doesn't disclose the particular liquids used to make the coolant. The Kataoka reference teaches

that a refrigerant can be made from a combination of ethylene glycol and glycerol. The coolant is used to prevent the increase in temperature of the fluorescent screen of the CRT (Column 4, Lines 63-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to create a liquid coolant using ethylene glycol and glycerol, as taught by Kataoka, to keep the temperature of the fluorescent screen from increasing.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Harper whose telephone number is (703) 305-7908. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

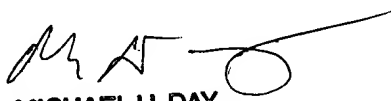
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Holly Harper
Patent Examiner
Art Unit 2879



September 27, 2002



MICHAEL H. DAY
PRIMARY EXAMINER